

**A NEW SPECIES OF *PYCNODERIELLA* (HETEROPTERA: MIRIDAE:  
BRYOCORINAE: ECCRITOTARSINAE) FROM THE WEST INDIES**

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**Abstract.**—The new eccritotarsine plant bug *Pycnoderiella insularis*, n. sp., is described from Cuba and Jamaica and compared with the type species of *Pycnoderiella* Henry, *P. virginiana* Henry, known from only a restricted coastal area of Virginia, in the eastern United States. Color dorsal and lateral adult images, illustrations of male genitalia, and a key are provided to facilitate recognition. The relationship of *Pycnoderiella* with other New World eccritotarsine Bryocorinae is discussed.

**Key Words:** Insecta, Hemiptera, new species, Cuba, Jamaica, relationships

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The bryocorine genus *Pycnoderiella* Henry (1993) was described to accommodate the species *P. virginiana* Henry found in a restricted area among sand dunes near Virginia Beach, Virginia, in the eastern United States. Henry (1993) compared *Pycnoderiella* with other genera occurring in North America and determined that it had its closest affinity to the monotypic *Sixeonotopsis* Carvalho and Schaffner, known only from Texas, based on similar parameres and the apparent lack of a tubercle or process on the rim of the genital capsule above the left paramere.

While sorting undetermined West Indian material in the National Museum of Natural History collection (USNM), Washington, D.C., I discovered four specimens of a bryocorine from Jamaica that appeared congeneric with *P. virginiana*. Further comparison and discovery

of another specimen from Cuba confirmed that this material represented a new species belonging in *Pycnoderiella*.

In this paper, I present the description of the new species *P. insularis*, diagnose *P. virginiana*, provide color dorsal and lateral images of the adult males and females, illustrate male genitalia, provide a key to help distinguished the two species, and discuss the relationship of *Pycnoderiella* with other New World Eccritotarsinae.

*Pycnoderiella* Henry

*Pycnoderiella* Henry 1993: 2 (orig. descrip.); Schuh 1995: 570 (cat.). Type species: *Pycnoderiella virginiana* Henry, 1993. Original designation.

**Diagnosis.**—Recognized by the small size (<2.00 mm in males, <1.70 mm in females); broad, punctate head; evenly punctate, strongly convex pronotum; posteriorly extended base of pronotum

\* Accepted by Michael W. Gates



hiding mesoscutum; small, equilateral scutellum; shape of the left (Figs. 9, 12) and right (Figs. 10, 13) parameres; and the reduced genital aperture, lacking a tubercle above the left paramere (Fig. 11).

Discussion.—The discovery of a new species of *Pyncoderiella* in the Caribbean Region adds considerable new information on the possible origin of this interesting but obscure and poorly known genus. The restricted range of *P. virginiana* in a small area of the eastern United States was always puzzling and, as a consequence, I suspected that it would prove to have either a wider distribution once the host was determined, or that it was an immigrant species that most likely had been introduced from the Neotropics. An adventive status now seems possible, given that Norfolk, Virginia, is a busy seaport that also has a large, active U.S. Naval base nearby.

Henry (1993) indicated that in North America, *Pyncoderiella* seemed to have the closest affinity to the genus *Sixeonotopsis*, based on the apparent lack of a tubercle above the left paramere (Fig. 11). I have restudied *Sixeonotopsis crassicornis* Carvalho and Schaffner and have found that it actually does have a small, indistinct, apically pointed tubercle above the left paramere similar to the much longer, stouter and, apically acute tubercles found in some species of *Sixeonotus* Reuter (species examined: *S. areolatus* Knight and *S. tenebrosus* Knight). In contrast, *Sixeonotus unicolor* Knight lacks a distinct tubercle. In the genera *Caulotops* Bergroth (species examined: *C. distanti* (Reuter)), *Halticotoma* Townsend (species examined: *H. valida* Townsend), and *Pyncoderes* Guérin-Méneville (species examined: *P. dilatatus* Reuter and *P. incurvus* (Distant)), the tubercle is large and apically bulbous. In *Bothrophorella nigra* (Stål), the tubercle is short and round, whereas

the genera *Cyrtocapsus* Reuter (species examined: *C. andinus* Carvalho and *C. caligineus* (Stål)) and *Tenthecoris* Scott (species examined *T. orchidearum* (Reuter)) lack a tubercle.

The left paramere in both species of *Pyncoderiella* is most similar to that of species in *Bothrophorella*, *Pyncoderes*, *Sixeonotopsis*, and some species of *Sixeonotus* (e.g., *S. tenebrosus*), in having a distinct, quadrate, but extended basal lobe, with a slender, apically bent arm. *Pyncoderiella*, however, differs in having a much shorter, more evenly rounded, basal lobe (Figs. 9, 12). The left paramere in *Sixeonotus areolatus* and *S. unicolor* is long, arching, and apically acute, indicating that *Sixeonotus* almost certainly is not monophyletic. The left paramere in species of *Caulotops*, *Cyrtocapsus*, *Halticotoma*, and *Tenthecoris* is greatly reduced and not at all similar to *Pyncoderiella*.

The right paramere in *Pyncoderiella* is relatively small, C-shaped, and somewhat arching (Figs. 10, 13), most similar to *Bothrophorella nigra* and *Sixeonotopsis crassicornis*. In the genera *Caulotops*, *Halticotoma*, *Pyncoderes*, *Tenthecoris*, and some species of *Sixeonotus* (e.g., *S. tenebrosus*), the right paramere is much longer and thicker, and arching across a wide genital aperture. In *Sixeonotus areolatus* and *S. unicolor*, however, the right paramere is short, quadrate, and apically truncate, a further indication that the genus is paraphyletic. In *Cyrtocapsus caligineus*, the right paramere is short and ovate and unlike that of *Pyncoderiella*.

In summary, this preliminary survey of the most similar New World genera indicates that *Pyncoderiella* is most closely related to *Bothrophorella nigra* and *Sixeonotopsis crassicornis* based on the shape of the parameres and absence (as in *B. nigra*) or reduction (as in *S. crassicornis*) of a tubercle over the left paramere. The genus *Pyncoderes* and



some species of *Sixeonotus* (e.g., *S. tenebrosus*) are also similar, but the stronger basal lobe on the left paramere, the much longer and stouter right paramere, and large tubercle on the aperture indicate a more distant relationship. The left paramere of the genera *Caulotops*, *Halticotoma*, and *Tenthecoris* is greatly reduced and, in combination with the much longer and more stout right parameres, these genital structures are overall much different than in *Pycnoderiella* or in *Cyrtocapsus*, with a greatly reduced genital capsule and parameres.

#### KEY TO SPECIES OF *PYCNODERIELLA*

1. Antennal segments I and II and legs uniformly pale yellow; dark brown band through middle of corium evenly narrowed and well defined; male fully macropterous (Fig. 1); female submacropterous (Fig. 3), with cuneus and membrane moderately reduced; apex of right paramere with an acute downward-pointing process (Fig. 10) ..... *insularis* Henry, n. sp.
- Antennal segment I yellow, segment II uniformly dark brown or fuscous; hind tibia and apical third of hind femur dark brown; dark brown band through middle of corium flaring wider toward clavus (anteriorly) and inner margin of cuneus (posteriorly); male submacropterous, with cuneus and membrane narrowed and elongated (Fig. 5); female submacropterous (Fig. 7), with cuneus narrowed and membrane reduced to a narrow strip along inner margin of cuneus; apex of right paramere without a downward-pointing process ..... *virginiana* Henry

#### *Pycnoderiella insularis*, new species

(Figs. 1–4, 9–10)

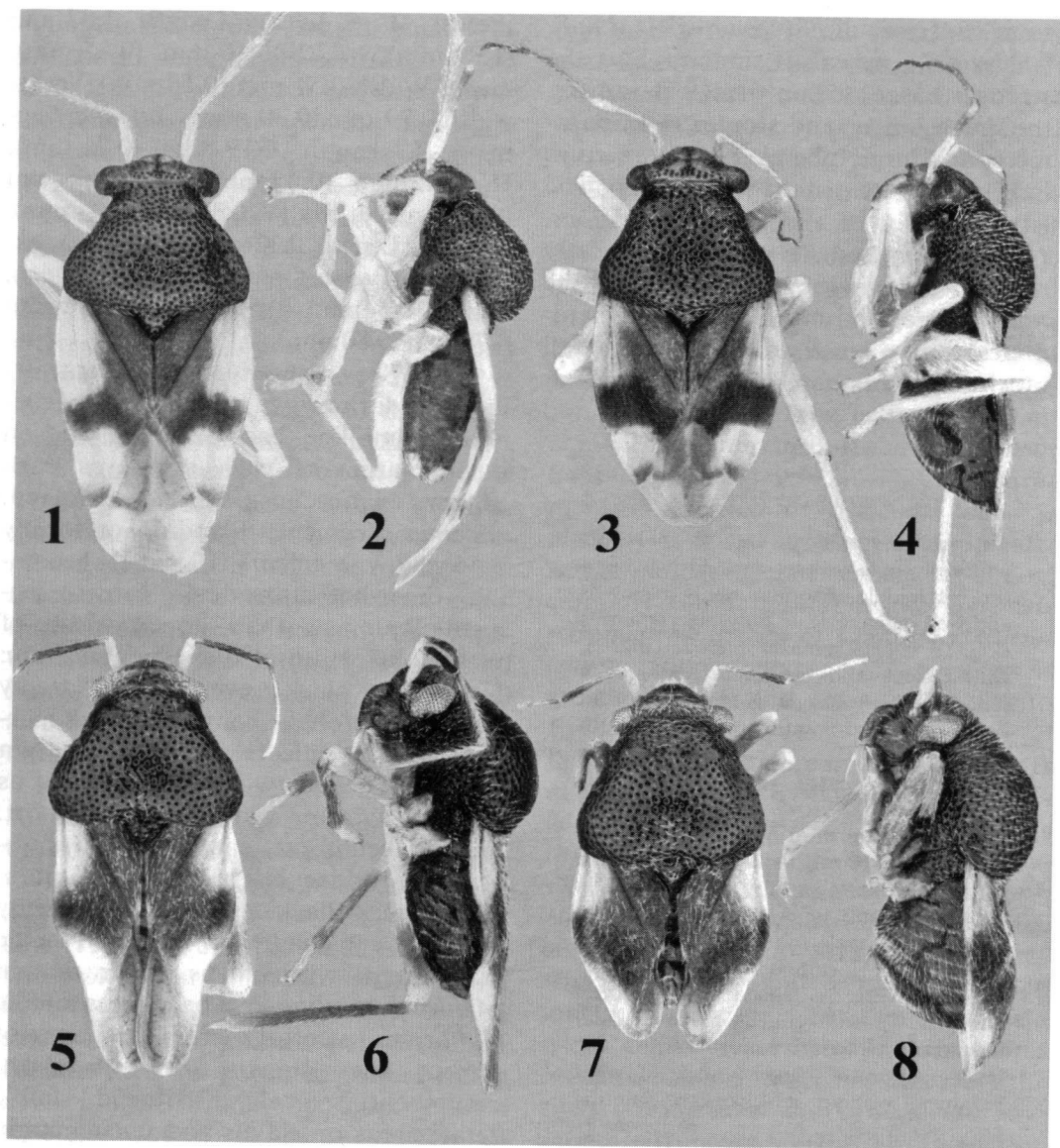
Diagnosis.—*P. insularis* can be distinguished from *P. virginiana* by the uniformly pale yellow antennae and legs, the more well-defined, relatively narrow bar across the corium, the fully macropterous males (Fig. 1) and submacropterous females (Fig. 3), and the shape of the parameres (Figs. 9, 10).

Description.—Macropterous male (n = 2; holotype measurements in paren-

theses) (Figs. 1, 2): Length 1.87 mm (1.89 mm), width 0.80 mm (0.85 mm). *Head*: Width 0.51 mm (0.54 mm), vertex width 0.29 mm (0.30 mm). *Antenna*: Segment I, length 0.19 mm (0.21 mm); II, 0.42 mm (0.45 mm); III, 0.46 mm (0.56 mm, curled); IV, 0.32 mm (0.34 mm). *Labium*: Length 0.32 mm (0.32 mm), extending to bases of middle coxae. *Pronotum*: Length 0.54 mm (0.56 mm); basal width 0.78 mm (0.80 mm).

*Head*: Brownish orange, with contrasting fine, dark brown punctures, especially along midline, base of vertex, and on inner margin of each eye; eyes dark brown or fuscous, tinged with red. *Antenna*: Segments I and II uniformly pale yellow, segments III and IV becoming somewhat more dusky brown; segment II longer than dorsal width of vertex plus width of one eye. *Pronotum*: Uniformly black, evenly and deeply punctate, strongly convex, lateral margins weakly sulcate, posterior margin weakly rounded, width about twice as wide as anterior width; set with short, sparse, recumbent, simple setae. *Meso-scutum*: Hidden by base of pronotum. *Scutellum*: Black, equilateral, evenly punctate. *Hemelytron*: Overall pale translucent, with clavus, inner margin of corium, a transverse bar across middle of corium to costal margin, and apex of cuneus dark brown; set with short, recumbent, sparsely distributed, simple setae; areas on clavus and inner margin of corium with a glaucous sheen; membrane pale translucent, veins, inside of large areole, and a cloud on apical half brown. *Ventral surface*: Shiny black, mesosternum impunctate, meso- and metapleural area punctate; abdomen impunctate, shiny dark brown to nearly black. *Ostiole evaporative area*: Whitish, reduced to a narrow strip along dorsal margin of metacoxa. *Legs*: Uniformly pale yellow.

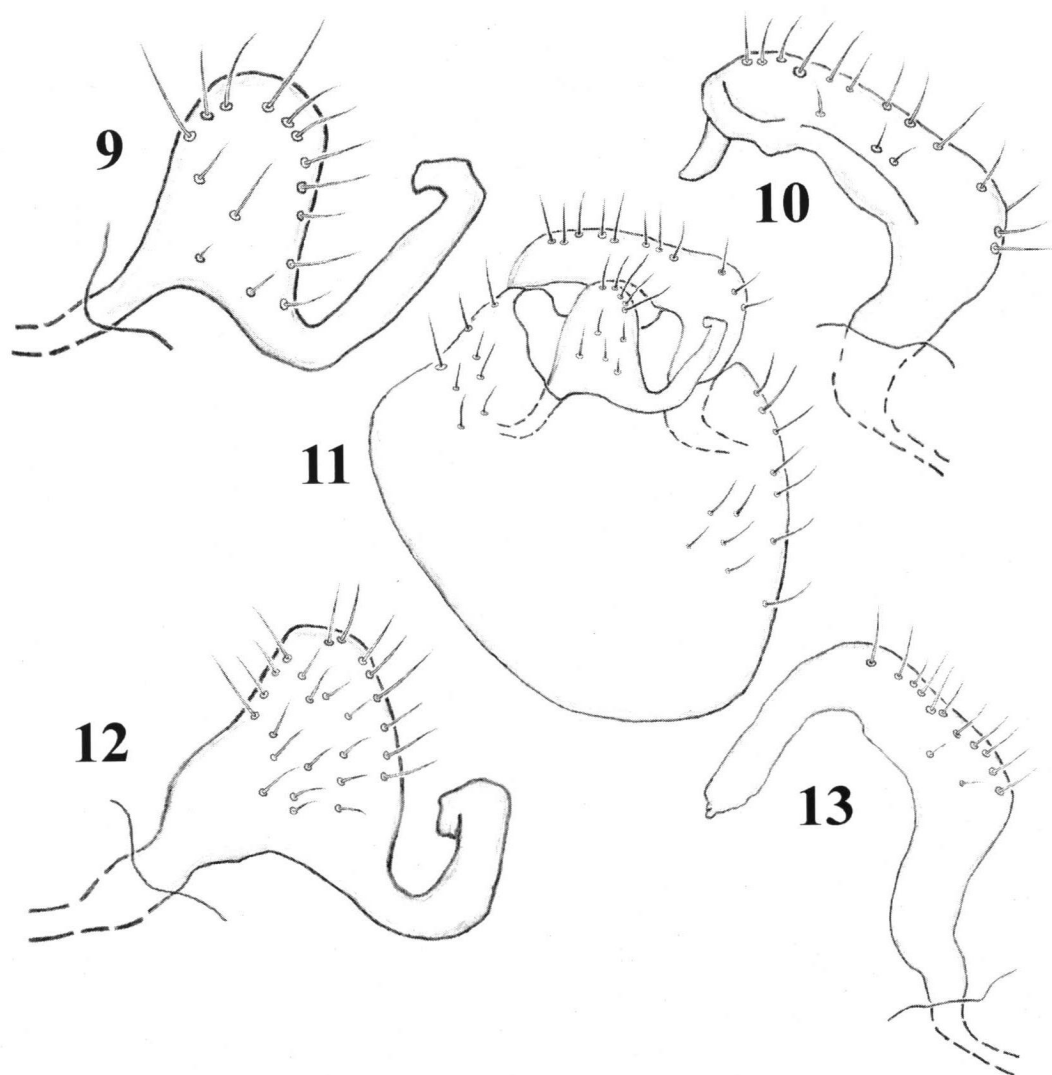
*Genitalia*: Left paramere (Fig. 9) with evenly rounded basal lobe. Right para-



Figs. 1-8. *Pycnoderiella* spp. 1-4, *P. insularis*. 1, dorsal aspect, male. 2, lateral aspect, male. 3, dorsal aspect, female. 4, lateral aspect, female. 5-8, *P. virginiana*. 5, dorsal aspect, male. 6, lateral aspect, male. 7, dorsal aspect, female. 8, lateral aspect, female.

mere (Fig. 10) somewhat C-shaped, with an acute, downward-pointing apical process. Genital capsule (Fig. 11) with reduced aperture lacking a tubercle above right paramere. Vesica, simple, membranous, sac-like, lacking spiculi or other visible sclerotization.

Submacropterous female ( $n = 2$ ) (Figs. 3, 4): Length 1.55-1.66 mm, width 0.78-0.83 mm. *Head*: Width 0.51-0.52 mm, vertex width 0.29-0.30 mm. *Antenna*: Segment I, 0.18-0.19 mm; II, 0.30-0.32 mm; III, 0.40-0.43 mm; IV, 0.21 (curled)-0.24 mm. *Labium*: Length



Figs. 9–13. Male genitalia of *Pycnoderiella* spp. 9–10, *P. insularis*. 9, Left paramere. 10, Right paramere. 11–12, *P. virginiana*. 12, Left paramere. 13, Right paramere.

0.50–0.53 mm, extending to middle coxae or slightly beyond. *Pronotum*: Length 0.51–0.56 mm, basal width 0.75–0.77 mm.

Similar to male in overall coloration and markings. Differing in the less convex pronotum (Fig. 4) and the slightly abbreviated, submacropterous condition of the cuneus and wing membrane (Fig. 3).

*Etymology*.—This species is named “insularis,” meaning island, for its occurrence on two Caribbean islands.

*Host*.—Unknown.

*Distribution*.—Known only from Cuba and Jamaica.

*Type material*.—Holotype ♂, Kingston, Jamaica, July 27, 1968, J. Maldonado C. (USNM). Paratypes: 2 ♀, same data as for holotype (USNM); 1 ♀, Harward Gap, Jamaica, July 21, 1968, J. Maldonado C. (USNM); 1 ♂, La Matazon, Jaquayon, El Salvador, Cuba, 380 m, 14 Jan. 1993, L. P. Armas (Instituto de Ecología y Sistemática [IES], Ciudad Habana, Cuba).



*Pycnoderiella virginiana* Henry  
(Figs. 5–8, 12, 13)

*Pycnoderiella virginiana* Henry 1993: 6  
(orig. descrip.); Schuh 1995: 570 (cat.).

Diagnosis.—*P. virginiana* is similar to *P. insularis* in color and markings. It can be distinguished from *P. insularis* by the fuscous antennal segment II, hind tibia, and apical third of the hind femur (versus entirely pale yellow for *P. insularis*); the slightly longer and more dense pubescence on the pronotum and hemelytra; the broader and marginally more diffused fuscous bar across the corium; the more angled basal lobe and more curved lateral arm of the left paramere (Fig. 12), and the lack of an apical process on the right paramere (Fig. 13). All known specimens of *Pycnoderiella virginiana* also exhibit a peculiar form of submacroptery. In the male (Figs. 5, 6), the cuneus and wing membrane are narrowed and elongated. In the female (Figs. 7, 8), the cuneus is greatly narrowed and shortened and the wing membrane is narrowed to a thin strip along the inner margin of the cuneus.

Male and female measurements (from Henry 1993): Length ♂ 1.92–2.12 mm, ♀ 1.68 mm; ♂ width 0.88–0.90 mm, ♀ 0.90–0.92 mm. Head: Width ♂ 0.56–0.60 mm, ♀ 0.58–0.60 mm; vertex ♂ 0.36–0.38 mm, ♀ 0.38 mm. Labium: Length ♂ 0.52–0.60 mm, ♀ 0.60–0.62 mm. Antenna: Segment I length ♂ 0.18–0.20 mm, ♀ 0.14–0.18 mm;

II ♂ 0.38–0.42 mm, ♀ 0.32–0.34 mm; III ♂ 0.42–0.48 mm, ♀ 0.36 mm; IV ♂ 0.36–0.46 mm, ♀ 0.44 mm. Pronotum: Length ♂ 0.60–0.62 mm, ♀ 0.60–0.62 mm; basal width ♂ 0.88–0.92, ♀ 0.88 mm.

Specimens examined.—6 paratypes (3 ♂♂ and 3 ♀♀), Virginia, Virginia Beach, Seashore State Park, Dune Drift-fence site, K. A. Buhlmann, with dates July, August, & September 1989, and January 1990 (USNM).

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